in FIG. **3**) adapted to isolate the analyte from the sample of material is disposed within central housing **15**.

[0051] After sample acquisition assembly **3** is introduced into opening **26**A, and first fluid **9** is introduced into hollow shaft **7** of sample acquisition device **5**, the eluted sample flows along the first flow path created by valve **14** in its sample preparation orientation. The eluted sample moves from first housing segment **16** through central housing segment **15** and to third housing segment **20**. As the eluted sample flows through central housing segment **15**, the eluted sample moves through capture medium **24** (shown in phantom in FIG. **3**), which is disposed within central housing segment **15**. Preferably, capture medium **24** is positioned and retained in such a way that fluid may pass over and through capture medium **24** while at the same time allowing capture medium **24** to capture and isolate the analyte from the sample of material. Examples of suitable capture media include, but are not limited to, beads, a porous membrane, a foam, a frit, a screen, or combinations thereof. The capture media may be coated with a ligand specific to the analyte, e.g., an antibody. In other embodiments, other means for isolating the analyte may be used. After the eluted sample moves through capture medium **24**, the remainder of the eluted sample (minus the captured analyte), which are no longer necessary for the assay, flows to third housing segment **20**. In this way, third housing segment **20** receives "waste". In some embodiments, an absorbent material is disposed in third housing segment **20** in order to retain the waste fluid in sufficient quantity in order to decrease the possibility that the waste fluid will move back into central housing segment **15** or another housing segment **16 18**, or **22** and contaminate the assay. In alternate embodiments, other means for retaining waste fluid are used.

[0052] After the analyte is isolated from the sample of material, the sample preparation stage is complete. Of course, in other embodiments, the assay may require additional sample preparation steps. After the waste fluid has flowed to third housing segment **20**, sample acquisition assembly **3** may be removed and valve **14** may be actuated (e.g., rotated) from its sample preparation position to its testing position.

[0053] After valve **14** is in its testing position, second fluid **25** disposed in fourth housing segment **22** may be released and introduced into central housing segment **15**. The exemplary second fluid **25** is a second buffer solution. Once again, the type of buffer solution that is to be incorporated into the assay is dependent upon many factors, including the analyte that apparatus **10** is configured to detect. In the exemplary embodiment, a frangible seal (not shown) is disposed in pathway **23** between fourth housing segment **22** and central housing segment **15**. Valve **14** is configured to pressurize pathway **23** to break the frangible seal. This allows second fluid **25** to be selectively released from fourth housing segment **22**. Second fluid **25** moves through capture medium **24** disposed in central housing segment **15** and releases at least some of the analyte from capture medium **24**.

[0054] Prior to contacting testing device **30**, any analyte that is present is placed in contact with a reagent adapted to react with the analyte in order for the indirect assay to run properly. Because the reagent is likely dehydrated in order to keep the reagent stable during storage of apparatus **10**, second fluid **25** retained in third housing segment **22** may be used to hydrate the reagent, and reactivate it. In the exemplary embodiment, a dehydrated reagent is disposed within pathway **23** and is retained in a seal formed by the flexible material forming the housing segments **15**, **16**, **18**, **20**, and **22**. When fourth housing segment **22** is pressurized by valve **14**, the seal containing the reagent is broken, similarly to the description of how an applied pressure to a fluid reservoir ruptures an adjacent barrier described in U.S. Patent Application Publication No. 2003/0214997, published on Nov. 20, 2003.

[0055] In alternate embodiments, the dehydrated reagent may be disposed within any suitable place within apparatus. For example, the dehydrated reagent may be disposed in fourth housing segment **22**, where second fluid **25** and the dehydrated reagent are capable of being separated until the operator wishes the reagent to be hydrated. Alternatively, the reagent may also be disposed in central housing **15**, pathway **19** between second housing segment **18** and central housing **15**, or second housing segment **18**.

[0056] After second fluid **25** releases at least some of the analyte from capture medium **24**, second fluid **25** and the released analyte move into second housing segment **18** along the second flow path formed by valve **14**. Where the reagent and analyte react depends on where the reagent is disposed. However, it is preferred that the analyte react with a reagent at some time prior to contacting the testing device because as previously stated, in an indirect assay, it is the reagent that reacts with the testing device. In the present invention, the analyte and reagent react in central housing segment **15**. Apparatus **10** may be agitated in order to help the reagent and analyte react.

[0057] Disposed within second housing segment **18** is third fluid reservoir **28** (shown in phantom in FIG. **3**) configured to receive second fluid **25** and the released analyte, testing device **30**, and channel **32** connecting third fluid reservoir **28** to testing device **30**. In the exemplary embodiment, channel **32** includes microfluidic elements for controlling the flow of fluid from third fluid reservoir **28** to testing device **30**. Testing device **30** may require fluid to flow past it at or below a certain rate in order for the analyte or reagent in the fluid to react with testing device **30**. In the case of the exemplary embodiment, an indirect assay is used, and so it is the reagent in the fluid that reacts with testing device **30**. A plurality of microfluidic elements may help this regulate this fluid flow past testing device **30**. In order to encourage fluid flow past testing device **30**, absorbent material **34** may be positioned in second housing segment **18**, where testing device **30** is positioned between channel **32** and absorbent material **34**. Absorbent material **34** may help the fluid flow past testing device **30** by way of a wicking action.

[0058] Testing device **30** provides a visual indicium of whether the analyte is present in the sample of material collected with sample acquisition device **5**, and in some embodiments, the test result indicates the quantity of analyte. In the exemplary embodiment, testing device **30** is a calorimetric sensor, which may include, for example, a polydimethylacetylene material, as described in U.S. Patent Application Publication No. 2004/0132217 A1, and U.S. Patent Application Ser. No. 60/636,993, filed on Dec. 17, 2004, both entitled, "COLORIMETRIC SENSORS CONSTRUCTED OF DIACETYLENE MATERIALS".

[0059] In the exemplary embodiment, a color of testing device **30** corresponds to a color-coding scheme. Testing device **30** may or may not provide a color change, depending upon whether the analyte is present in the sample of material. A user may view this color change through window **36** (shown in FIG. **3**). The color change may also be graded in order to indicate the quantity of analyte present. The quantity of analyte may, for example, be indicated a color gradient